

What is claimed is:

1. A substrate cleaning apparatus comprising:
a substrate holder that holds a substrate; and
first and second scrub heads cooperating with each other in order to clean the substrate held by the substrate holder;

wherein the first scrub head is made of a brush or a sponge, and

wherein the second scrub head has an internal space, into which a cleaning liquid is supplied, and a surface of the second scrub head is formed of a porous material having a plurality of pores through which the cleaning liquid supplied to the internal space is discharged.

2. A substrate cleaning apparatus comprising:
a substrate holder that holds a substrate; and
first and second scrub heads cooperating with each other in order to clean the substrate held by the substrate holder,

wherein the first scrub head is maintained at a height where the first scrub head substantially contacts with the substrate during a cleaning operation, and

wherein the second scrub head is maintained at a height where the second scrub head contacts with the substrate via a liquid film formed on the substrate.

3. The apparatus according to claim 2,
wherein the first scrub head has a brush or sponge, which removes contamination from a surface of the substrate, and

wherein the second scrub head has an internal space, into which a cleaning liquid is supplied, and a surface of the second scrub head is formed of a porous material having a plurality of pores through which the cleaning liquid supplied to the internal space is discharged.

4. A substrate cleaning apparatus comprising:
a substrate holder that holds a substrate; and
first and second scrub heads cooperating with each other in order to clean the substrate held by the substrate holder,

wherein the first scrub head is superior to the second scrub head in terms of a capability of removing contamination adhering to a surface of the substrate, and wherein the second scrub head has a low level of adhesion to the contamination than that of the first scrub head.

5. The apparatus according to claim 4, wherein the first scrub head has a brush or a sponge that removes the contamination from the surface of the substrate.

6. The apparatus according to claim 4, wherein the second scrub head is formed of a porous material having a plurality of pores through which the cleaning liquid supplied to the internal space is discharged.

7. A substrate cleaning apparatus comprising:
a substrate holder that holds a substrate; and
first and second scrub heads cooperating with each other in order to clean the substrate held by the substrate holder,

wherein the first and second scrub heads are different at least in material or structure.

8. The apparatus according to claim 7, wherein the first and second scrub heads move relative to the substrate such that the second scrub head follows the first scrub head.

9. The apparatus according to claim 7, wherein the first scrub head has a brush or a sponge for removing contamination adhering to a surface of the substrate, and wherein the second scrub head has an internal space, into which a cleaning liquid is supplied, and a surface of the second scrub head is formed

of a porous material having a plurality of pores through which the cleaning liquid supplied to the internal space is discharged.

10. The apparatus according to claim 7, wherein the first scrub head is superior to the second scrub head in terms of a capability of removing contamination adhering to a surface of the substrate, and wherein the second scrub head has a lower level of adhesion to the contamination than that of the first scrub head.

11. The apparatus according to claim 8 further comprising:
a motor that rotates the substrate holder;
a head travelling mechanism that moves the first and second scrub heads horizontally; and

a controller that controls the motor and the head travelling mechanism,

wherein the controller decreases a rotational speed of the substrate held by the substrate holder as the first and second scrub heads approach a periphery of the substrate.

12. The apparatus according to claim 8 further comprising:
a motor that rotates the substrate holder;
a head travelling mechanism that moves the first and second scrub heads in a radial direction of the substrate from about a center of the substrate; and

a controller that controls the motor and the head travelling mechanism,

wherein the controller decreases a velocities of the first and second scrub heads as the first and second scrub heads approach a periphery of the substrate.

13. The substrate cleaning method comprising the steps of:
holding a substrate by a substrate holder; and
moving first and second scrub heads over the substrate held by the substrate holder while feeding a cleaning liquid onto the substrate, thereby removing contamination adhering

to the substrate,

wherein the first scrub head is superior to the second scrub head in terms of a capability of removing contamination adhering to a surface of the substrate, and wherein the second scrub head has a lower level of adhesion to the contamination than that of the first scrub head, and

wherein the first and second scrub heads moves relative to the substrate such that the second scrub head follows the first scrub head during the step of removing contamination.

14. The method according to claim 13, wherein the substrate is rotated during the step of removing contamination.

15. The method according to claim 13, wherein the first and second scrub heads move from a center of the substrate toward a periphery of the substrate, during the step of removing contamination.

16. The method according to claim 15, wherein velocities of the first and second scrub heads are gradually decreased as the first and second scrub heads approach a periphery of the substrate, during the step of removing contamination.

17. The method according to claim 15, wherein a rotational speed of the substrate is gradually decreased as the first and second scrub heads approach a periphery of the substrate during the step of removing contamination.

18. The method according to claim 13, wherein the first scrub head moves while rotating during the step of removing contamination.

19. The method according to claim 13, wherein the second scrub head moves while discharging a cleaning liquid through a surface of the second scrub head during the step of removing contamination.

20. The method according to claim 13, wherein the second scrub head contacts with the substrate via a film of the cleaning liquid formed on a surface of the substrate during the step of removing contamination.

2025 RELEASE UNDER E.O. 14176